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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/083,481	02/27/2002	Yuko Iwabuchi	29273/559	5826

23838 7590 07/28/2003

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WASHINGTON, DC 20005

EXAMINER	
BERMAN, JACK I	

ART UNIT	PAPER NUMBER
2881	

DATE MAILED: 07/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/083,481	IWABUCHI ET AL.	
	Examiner	Art Unit	
	Jack I. Berman	2881	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 April 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4-13 and 16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 4-13, 16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In line 2 of claim 16, as amended in the amendment filed on April 7, 2003, "electron" should read --electrode-- because "an electron set at a positive potential" makes no sense. An electron, by definition, has a negative potential. This amendment undid the correction of this error made in the amendment filed on November 26, 2002.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 4, 9, and 10 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Feuerbaum et al.. Feuerbaum et al. discloses a scanning electron microscope and a method of using it for examining a specimen by scanning an electron beam over the specimen and detecting charged particles emanating from the specimen by means of detector DT and converting these detected charged particles to an electrical signal. Such an examination would inherently reveal any defects in the specimen.

Feuerbaum et al. teaches, at lines 56-58 in column 7, that it is advantageous to provide a beam blanking system, which comprise a deflector, at a crossover in the electron beam formed by a convergence lens. Feuerbaum et al. also teaches to apply a retarding voltage to decelerate the electron beam before it reaches the specimen. At lines 14-20 in column 9, the patent teaches:

> "For the case where measurement means including detector DT is to be utilized for effecting electric potential measurements or spacial measurements on the specimen PR, the final energy level of the beam as it impinges on the specimen PR is preferably such that a charge balance of impinging and departing charge results at the specimen PR."

Since the charge balance of impinging and departing charge on a specimen inherently depends on the nature of the specimen, the teaching of the patent would inherently require changing the magnitude of the retarding voltage based on the nature of the specimen because specimens having different natures (including different compositions and different topographies) would have different amounts of charge departing from the specimen in response to any given amount of charge impinging on the specimen. Feuerbaum et al. does not specify a beam current for the method and apparatus so it cannot be determined whether or not the patented scanning electron microscope anticipates the current range of at least 100nA claimed in the instant application, but even if it does not, such currents are matters for routine experimentation which would be obvious if not anticipated. Since Feuerbaum et al. places no restrictions on the electron beam current, it would appear to a person having ordinary skill in the art that the teaching that it is advantageous to provide a beam blanking system, which comprises a deflector, at a crossover in the electron beam formed by a convergence lens would be applicable to electron microscopes at all values of electron current. This is especially true since Feuerbaum et al. teaches, at lines 67 in column 1 through 36 in column 2 and lines 32 in column 3 through 52 in column 4, that one of

the objectives of the patented invention is to allow the use of higher beam currents in scanning particle microscopes than is possible in the prior art without a reduction in resolution.

Claims 5, 6, 11, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerbaum et al. in view of Meisburger et al. Meisburger et al. teaches to inspect a specimen for defects by detecting charged particles emanating from a specimen scanned by an electron beam, converting the detected charged particles to an electrical signal, storing the picture information conveyed by the electrical signal, and comparing this picture to another picture to detect any defects. (See the last sentence in the abstract.) It would have been obvious to a person having ordinary skill in the art to use Meisburger et al.'s comparison system to compare the picture formed by the electrical signals produced by Feuerbaum et al.'s detector DT to another picture in order to detect defects in the manner taught by Meisburger et al. Meisburger et al. also teaches, at lines 27-31 in column 8, to provide an electrode 118 set at a positive electric potential with respect to a negative voltage (which inherently constitutes a deceleration voltage because it decelerates the primary electron beam) applied to electrode 106 between the specimen 57 and the detector 117. It would have been obvious to a person having ordinary skill in the art to provide such an electrode in front of the detector DT in the Feuerbaum et al. apparatus since Meisburger et al. teaches that such an electrode must be provided in order for the electrons to reach the detector with enough energy to be detected.

Claims 7 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerbaum et al. in view of Rose et al. Rose et al. teaches that crossed electric and magnetic fields can be used to direct secondary electrons emitted by a specimen to a detector without distorting the primary electron beam. It would have been obvious to a person having ordinary

skill in the art to incorporate Rose et al.'s electric and magnetic fields into the Feuerbaum et al. apparatus to more effectively detect secondary electrons without adversely affecting the primary electron beam.

Claims 8 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerbaum et al. in view of Todokoro et al. Todokoro et al. teaches, in the embodiments illustrated in Figures 2 and 3 and discussed at line 38 in column 6 through line 44 in column 7, that in order to detect secondary electrons 23 emitted by a sample 12 in a scanning electron microscope while minimizing any deflection of the primary electron beam 7 caused by an electric field (with or without a crossed magnetic field) used to direct the secondary electrons to the detector, the secondary electrons 23 should be directed to target plate 29 which is coated with a material which generates secondary electrons upon being struck by secondary electrons 23. It would have been obvious to a person having ordinary skill in the art to provide Todokoro et al.'s target plate 29 in the Feuerbaum et al. scanning electron microscope in order to more effectively detect secondary electrons without adversely affecting the primary electron beam.

This is a Continued Examination of applicant's Application. All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the earlier application. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action in this case. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jack I. Berman whose telephone number is (703) 308-4849. The examiner can normally be reached on M-F (8:30-6:00) with every second Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on (703) 308-4116. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Jack I. Berman
Primary Examiner
Art Unit 2881

jb
July 24, 2003